A.D. 1875, 20th January. N° 214.

SPECIFICATION

OF

JOHN BOX, EDOUARD AUBERTIN, LEOPOLD BOBLIQUE, AND HYPOLITE LEPLAY.

DISINFECTION OF SEWAGE, &c.

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LETTERS PATENT to John Box, of 20, Great George Street, Westminster, Civil Engineer, Edouard Aubertin, of No. 66, in the Boulevard of Strasburg, in the City of Paris, Gentleman, Leopold Boblique, of No. 72, in the same Boulevard, Chemist, and Hypolite Leplay, of Reulle des Meuniers, No. 4, at Bercy, in the City of Paris, Chemist, for the Invention of "IMPROVEMENTS IN THE DISINFECTION OF SOLID AND LIQUID MATTERS, SUCH AS NIGHT SOIL, SEWERAGE, EITHER TOGETHER OR SEPARATELY, GAS, AND OTHER FOUL WATERS."

Sealed the 13th July 1875, and dated the 20th January 1875.

PROVISIONAL SPECIFICATION left by the said John Box, Edouard Aubertin, Leopold Boblique, and Hypolite Leplay at the Office of the Commissioners of Patents, with their Petition, on the 20th January 1875.

We, JOHN BOX, of 20, Great George Street, Westminster, Civil Engineer, EDOUARD AUBERTIN, of No. 66, in the Boulevard of Strasburg, in the City of Paris, Gentleman, LEOPOLD BOBLIQUE, of No. 72, in the same Boulevard, Chemist, and HYPOLITE LEPLAY, of Ruelle des

Meuniers, No. 4, at Bercy, in the City of Paris, Chemist, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN THE DISINFECTION OF SOLID AND LIQUID MATTERS, SUCH AS NIGHT SOIL, SEWERAGE, EITHER TOGETHER OR SEPARATELY, GAS, AND OTHER FOUL WATERS," to be as follows:—

We employ a soluble alkaline phosphate and a soluble salt of magnesia and oxide of iron or other form of iron. We employ these agents in different combinations. We prefer phosphate of potash or ferruginous soda prepared by calcination in a reverberatory furnace, the phosphate of iron with the sulphate of soda, and a soluble salt of magnesia such as the chlorure of magnesium, or any other.

The method of operating with these products is very simple:—The raw matter as it leaves the reverberatory furnace is washed with the liquids to be disinfected, which lose the sulphuretted hydrogen contained in them in their passage through the raw material, which remains deposited in the state of sulphure of iron. To the water thus deprived of the sulpuretted hydrogen we add the soluble salt of magnesia. Magnesian phosphate of ammonia is immediately formed, which precipitates itself, taking with it the azoted organic matters which are found in the liquids. After a short time the water becomes clear, and may be run into rivers or streams without any inconvenience.

To disinfect the thick matters, such as night soil, we reduce the same products into powder, and we mix them with the thick matter, adding soluble salt of magnesia. We also employ phosphate of lime dissolved in chlorhydric acid, and oxide of iron also dissolved in chlorhydric acid. The cheapest phosphate of lime, such as coprolytes or others, can be employed dissolved in chlorhydric acid. We also take hydrated oxide of iron dissolved in chlorhydric acid. We mix these two solutions with the matter or liquid to be disinfected, and we saturate the excess of acid with the double carbonate of lime or of magnesia. We can saturate with chalk, but in this case we add a certain quantity of soluble salt of magnesia. The deposit of magnesian phosphate of ammonia obtained by the treatment with ferruginous phosphate of soda can be dried in the air and reduced into powder, and is a very powerful manure, containing not only ammoniacal magnesian phosphate, but also azoted organic matters, which the ammoniacal magnesian phosphate has taken down with it in precipitating itself. It can also be used for the extraction of ammoniac. The liquids proceeding from these different treatments can be allowed to run into rivers without any inconvenience to public health, and the residue forms a rich and valuable manure.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said John Box, Edouard Aubertin, Leopold Boblique, and Hypolite Leplay in the Great Seal Patent Office on the 16th July 1875.

TO ALL TO WHOM THESE PRESENTS SHALL COME, we, JOHN BOX, of No. 20, Great George Street, Westminster, Civil Engineer, EDOUARD AUBERTIN, No. 66, in the Boulevard of Strasburg, in the City of Paris, Gentleman, LEOPOLD BOBLIQUE, of No. 72, in the same Boulevard, Chemist, and HYPOLITE LEPLAY, of Reulle des Meuniers, No. 4, at Bercy, in the City of Paris, Chemist, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twentieth day of January, in the year of our Lord One thousand eight hundred and seventy-five, in the thirty-eighth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto us, the said John Box, Edouard Aubertin, Leopold Boblique and Hypolite Leplay, Her special licence that we, the said John Box, Edouard Aubertin, Leopold Boblique, and Hypolite Leplay, our executors, administrators, and assigns, or such others as we, the said John Box, Edouard Aubertin, Leopold Boblique, and Hypolite Leplay, our executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN THE DISINFECTION OF SOLID AND LIQUID MATTERS, SUCH AS NIGHT SOIL, SEWERAGE, EITHER TOGETHER OR SEPARATELY, GAS, AND OTHER FOUL WATERS," upon the condition (amongst others) that we, the said John Box, Edouard Aubertin, Leopold Boblique, and Hypolite Leplay, our executors or administrators, by an instrument in writing under our, or one of our, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said John Box, on behalf of myself and the said Edouard Aubertin, Leopold Boblique, and Hypolite Leplay, do hereby declare the nature of our said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

We employ a soluable phosphate and a soluable salt of magnesia and oxide of iron or other form of iron. We employ these agents in different combinations. We prefer phosphate of potash or ferruginous soda, which is prepared by calcination in a reverberatory furnace of the phosphure of iron with the sulphate of soda or potash, which thus produces the ferruginous phosphate of soda or potash. To this we add any soluble salt of magnesia, such as the chlorine of magnesia.

The method of operating with these products is very simple:—The raw ferruginous phosphate of soda or of potash, without further preparation, in the state in which it leaves the reverberatory furnace, is washed with or is thrown into the liquids to be disinfected, which removes the sulphuretted hydrogen contained in them in their passage through or mixing with the raw material; thus the two products may be used together or separately. The ferruginous phosphate being first used, the ammonial water, urine, or gas water is thus deprived of the sulphuretted hydrogen it contains. The soluble salt of magnesia is then added, and magnesian phosphate of ammonia is immediately formed, which precipitates itself, taking with it the azoted organic matters which are found in the liquids. After a short time the water becomes clear, and may be run into rivers or streams without any inconvenience.

To disinfect the thick or semi-liquid matters, such as night soil, we reduce the ferruginous phosphate of soda or potash into powder, and we mix them with the thick or semi-liquid matter, adding a soluble salt of magnesia. We also in certain cases employ phosphate of lime dissolved in chlorhydric acid, and oxide of iron also dissolved in chlorhydric acid; the cheapest phosphate of lime, such as coprolytes or others, can be employed dissolved in chlorhydric or other acid. We also take hydrated oxide of iron dissolved in chlorhydric or other acid. We mix these two solutions with the matter or liquid to be disinfected, and we saturate the excess of acid with the double carbonate of lime or of magnesia. We can saturate with chalk, but in this case we add a certain quantity of soluble salt of magnesia. The deposit of magnesian phosphate of ammonia obtained by the treatment with ferruginous phosphate of soda can be dried in the air and reduced into powder, and is a very powerful manure, containing not only ammoniacal magnesian phosphate but also azoted organic matter which the ammoniacal magnesian phosphate has taken down with it in precipitating itself. It can also be used for the extraction of ammonia from liquids containing ammonia. The liquids proceeding from these different treatments can be allowed to run into rivers without any inconvenience to public health, and the residue forms a rich and valuable manure.

In witness whereof, I, the said John Box, on behalf of myself and the said Edouard Aubertin, Leopold Boblique, and Hypolite Leplay, have hereunto set my hand and seal, this Twelfth day of July, in the year of our Lord One thousand eight hundred and seventy-five.

JOHN BOX. (L.S.)

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